

DATA CENTER OPERATIONS BRANCH

NDS OPERATIONS PROCEDURE MANUAL  
NO. P-D008

SYSTEMS SW & HW  
13 April 1983

DUMP (1100/80)

SYMBOLIC TITLE: DUMPS  
ORIGINATOR:

ADMINISTRATIVE-INTERNAL USE ONLY

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NO. 50-0003

OPERATIONS-GENERAL  
26 OCTOBER 1982

## 1100/84 DUMPS

### PURPOSE

1. The procedures contained herein cover the 1100/80 dump processes which copy the contents of main storage to tape or disk. There are two methods for accomplishing system dumps: AUTO RECOVERY PANIC DUMP and OPERATOR INITIATED PANIC DUMPS.

### REFERENCE

2. UNIVAC Manual (UP-7928) 1100 Executive System Operator Reference Manual. TM 184 System Dumps 30 July 1982.

### DUMP PROCESSES

#### 3. AUTO RECOVERY PANIC DUMP (ARPD)

a. An ARPD is initiated by the 1100 operating system without operator intervention when a system error is detected and the System Transition Unit (STU) processor panel select Jump switch "3" (Suppress Auto Recovery) is not set. Upon completion of the dump the operator is given the message:

0 - Save Panic Dump to Tape or Mass Sotrage? T, M, NO

At this time bring up a tape drive and mount a scratch tape. Answer the console message with a "T" (for tape). The dump is then written to tape for printing and system error analysis. Rebooting is not required.

#### 4. OPERATOR INITIATED PANIC DUMPS

a. 150 STOP - This is initiated by the operator entering "\$!" on the system console. Generally this is the preferred way for the operator to initiate a dump. This can be used to recover and dump a system "HANG", (provided the console will accept keyins), a run that cannot be 'X'ed or to clear the console when a stream of messages are preventing normal operation.

b. MANUAL DUMP - This is initiated by the operator booting the system with Jump key 2 set. This type of dump should be taken when a 150 STOP can not be taken on a hung system because the console won't respond, zero stop occurs or when Auto-Recovery fails.

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c. ON-LINE DUMP - This type of dump is initiated by the operator keyin "DU MP" on the system console. This type of dump has limited value. When there is poor system performance or when system abnormalities are noticed the ON-LINE DUMP would be initiated. This dump does not stop the system and does not cause a reboot.

Caution should be exercised in using the ON-LINE DUMP. Real-time programs may lose communication data, so if Real-Time programs are running in the system, they must be made inactive prior to proceeding with the dump. Otherwise the ON-LINE dump does not cause any runs or files to be lost.

It does however stop all system activity momentarily with the effect that no jobs will run, terminals will not receive any responses, and the console will not respond to inquiries.

#### 5. SYSTEMS MAINTENANCE UNIT (SMU)

a. The SMU may be used to record system registers in the case of a system hang, or a zero stop. This must be accomplished prior to a dump.

##### 1. At the System transition Unit (STU):

- Assure the system application is disable, inactive and stopped.
- Set the Panel Lock Switch to the RELEASE POSITION.
- For the appropriate PROCs, IOUs, and SIU's in the application; set the Maintenance Mode switches ON.

##### 2. At the System Maintenance Unit (SMU):

- Initial Program Load (IPL) the SMU by depressing STOP, RESET, and SYS LOAD: the SMU Supervisor will load.
- At the SMU console, depress function key 'F1'; this will load and execute the PANEL program.
- Press (MESSAGE WAITING) then keyin 'IP' to initiate the printer.

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- Answer '3' this is the type of output printer used.
- Keyin 'GETL XX' where 'L30' is a list provided by the site execute and dump registers.
- Keyin 'STRT' to start the output printer listing of the CPU registers. When the listing is finished, go to the STU panel. At the STU panel turn the Application Maintenance Mode Switches OFF.

#### 6. TAPE PMD

A tape PMD requires the mounting of the boot tape and a scratch (dump) tape on two available drives. The system obtains instructions for the dump from the boot tape, causing the contents of main storage, the DIAG\$ file from the boot tape, and the mass storage copy of the operating system to be copied to the dump tape for later analysis.

A tape PMD is specified by setting the STU Input/Output Unit (IOU) panel channels and device select dial to the selected boot type drive, setting Jump Select 2 on the processor panel, and depressing clear and initial load on the initial load panel.

The operating system displays the message "PANIC DUMP TAKEN" when the dump is complete. If the message "PANIC DUMP NOT TAKEN" appears instead, retry the dump procedure from the beginning. When the dump is complete the system is then ready to be rebooted in accordance with boot procedures.

#### 7. DISK PMD

A disk PMD is specified by setting the STU IOU panel channel and device dials to the applicable disk drive using the DRS pack, setting Jump Select switch 2 on the processor panel, and depressing clear and initial load on the initial load panel.

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The disk PMD obtains instructions for the dump from the Disk Resident System (DRS) causing the operating system to take a disk storage. The system will display on the operators console "PANIC DUMP TAKEN". At this time the operator must manually initiate a disk or tape boot. (Note: The system does not automatically boot itself). Upon completion of the boot, operators should start a 'SDUMP'. The following message will print on the console:

Ø ENTER PANIC DUMP TAPE REELNO, EQP OR NO

At this time answer the message with "EQP", the SDUMP will process until completed.

## 8. CMS SYSTEM

a. CMS dumps may be taken in two ways to provide diagnostic information.

1. II CMS TERME will terminate CMS and produce a dump. CMS will notify the operator when CMS can be restarted.

2. If CMS is terminated by the operator with an 'E CMS' keyin a dump is available but is not processed. This dump *can be started* with the keyin:

ST CMS7\*FILE.CMSDUMP/OPS,,,UNIVAC  
DEV

The 'E CMS' should be used by the operator only as a last resort, only if CMS cannot be terminated with the II CMS TERMI keyin.

CMS only affects Delta Data Terminals and the COINS System, therefore dumps of CMS should only be initiated due to a failure of these two device types.

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There are several reasons for taking a dump of CMS:

- (a) In case of line hangs to Delta Data's or COINS system which cannot be cleared.
- (b) COMPOOL has been reduced to minimal levels and cannot be recovered.
- (c) II CMS operator keyins (EX:HLD) fail to function.
- (d) A fatal contingency will cause CMS to terminate on a dump to be processed. This process requires no operator intervention and occurs automatically.

#### 9. C/SP SYSTEM

a. C/SP dumps may be taken in three ways each having various advantages, in providing diagnostic information.

- 1. Initiated by 'PC I' keyin. This is the preferred method since it also reloads the C/SP program and re-initializes the line handlers if taken for a line hang condition. Since CMS reassigns lines after the RE-IPL, users<sup>may</sup> experience a short delay of 20-30 seconds in response on TIP terminal output and will not have to re-sign-on.
- 2. Initiated by 'PC D' keyin. This is similar to the 'DU MP' systems dump in that the C/SP supervisor is not stopped or RE-IPL'd. The information provided by this dump is limited in nature because C/SP memory is dynamically changing during the dump process. No outage will occur to the user.
- 3. Manual HALT,CLR,RUN from C/SP panel. This method provides the most data but should only be required when dumps of method 1 fail to provide information necessary to resolve a problem. This method dumps lower memory locations that cannot be observed in dumps 1 & 2. This results in the longest outage of the three methods unless two operators are involved to initiate the dump.

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There are several reasons for taking a C/SP dump.

- a. C/SP red light stop. A manual dump should be taken.
- b. 'Program terminated' message on system console. If an IPL solicit is not received, a 'PC I' keyin should be made with a 'D' response to the IPL message.
- c. Operator cannot clear a Hung Line by DNing and UPing the line (/DWN/ACT for CMS) from the system console. It is recommended that the dump be taken when the hang re-occurs after a RE-IPL since DNing and UPing of the line will mask the original cause.
- d. Terminal failure to sign-on. Similar to c. Reload C/SP, wait a reasonable time for sign-on (15 min for HETRA/9300) and dump if still hung. Avoid keyins to affected line before dumping.

10. DMS SYSTEM

- a. Dump information on DMS appears in the procedure on DMS.

11. REQUIREMENTS FOR ANALYSIS (PROCESSING DUMPS)

Vital information is needed by SPS and/or UNIVAC CEs to determine the cause of a system hang or crash. The availability of this information will aid and expedite in the correction of the problem area. The information gathered should be included and/or attached to the Descrepency Report (DR). Information needed is as follows:

- \*a. If one of the Partition Panel check lights on.
  1. Indicate which one
  2. No dump necessary
- \*b. If the Processor STOPLIGHT and the Processor active Light On at the same time.
  1. Indicate 'Control Stop'
  2. No dump necessary

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- \*c. If one of the Processor stop condition Light On.
  - 1. Indicate which Processor stop
  - 2. Take a dump
- d. The Dump Tape Number.
- e. Hardcopy of Dump if it is first occurrence of problem.
- f. Error Code.
- g. For Operator Initiated Dumps:
  - 1. Type of Dump Initiated (MANUAL, 150 or 'DUM MP')
  - 2. A statement or reason for system reboot i.e.,;
    - system not responding to all or certain console keyins.
    - lost COMPOOL
  - 3. List the actions taken on recovery attempts prior to reboot.
- h. All System Dumps (AUTO RECOVERY)
  - 1. Include a copy of the console sheet from the slave console with the DR and Dump.
  - 2. Include statements on any and all unusual activities prior to and during the problem i.e.,;
    - Reconfigurations
    - Transfer switch activities
    - Operator console entries
    - User complaints (CMS, RMS lines)

The operator should use the "DUMP SUPPORTING DATA" stamp, as shown in Attachment 1, on the DR form. The format summarizes what is required per paragraph 1.1.

\*UNIVAC CE should be notified of items A, B, or C occur.